Author’s response to reviews

Title: Effect of oral functional training on immunological abilities of older people: a case control study

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Author’s response to reviews:

Professor Martin Schimmel,

Editor of

BMC Oral Health

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Dear Dr. Martin Schimmel,

OHEA-D-16-00483

We appreciate the opportunity to resubmit our article, “Effect of oral functional training on immunological abilities of older people: a case control study”. Attached to this letter, please find the revised manuscript and the answer sheet for reviewer’s comments. The revised sentences were colored in yellow.
This manuscript has not been published or presented elsewhere in part or in entirety, and is not under consideration by another journal. All the authors have approved the manuscript and agree with submission to BMC Oral Health.

Thank you for considering our manuscript, and we look forward to hearing from you at your earliest convenience.

Sincerely,

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All change except for reference were colored in yellow.

Reviewer reports:

Reviewer 1: In this paper, the challenging hypothesis that oral exercise improved immunological abilities was tested in 30 elderly participants. Tongue pressing exercise and massage on major salivary glands were conducted. As results, expected increase in salivary immunoglobulin A was not detected, so authors investigated the difference in response pattern of saliva and IgA flow during experimental period by cluster analysis. Authors compared characteristics between two clusters (lower/higher saliva and IgA), and they found only BMI was significantly different.

Overall, the manuscript presents with a weak theoretical background. In Introduction, authors referenced only few articles, which could not explain "Weakened oral cavity function in older people reduces immune system function, and leads to decreased systemic health" (P5L41-44). Authors have to discuss more concretely the mechanism by which oral exercise affect on immune function.

According to the reviewer’s comments, we significantly revised Background. The first paragraph to describe epidemiological background for elder persons were deleted. Instead, we revised the second paragraph and newly added third paragraph to describe theoretical background and appropriate references to clarify the possible reason of oral exercise effect on immune function. (Line 67-97)
In the section of Discussion, there are some explanation which suggested the limitation of this study, such as "a reduction in acute stress is one possible explanation" (P13L39-42) and "An analysis using wider variety of salivary molecules with..." (P13L56-P14L2). These limitations are rather flaw in experimental protocol in such a case control study.

According to the reviewer’s comments, we revised Discussion and Conclusions. We also revised Material and Methods in associated with these limitations (Lines 151-152, 295-296, 302-305, 328).

Also, the conclusion "BMI characterized salivary features more than any other parameters, such as..." should be discussed concretely. I'm not statistician, but I wonder why authors didn't use multi-variable analysis.

Since the change of salivary IgA did not clear, multivariate analysis which aimed to explore confounding factors are not suitable here. Therefore, we used clustering analysis to find new subtype of the elder subjects. To clarify, we revised the Clustering analysis section. (Lines 310-311)

Minor

P4: "age 80 and over" is not proper as a key word.

We thank the observation. We revised this term to correct Mesh Term “aged, 80 and over”. (Line 61)

P11 last line: "adjusted P-values" should be explained in detail.

To clarify the meaning of adjusted, we added the following phrase after adjusted P-values. “calculated by FDR which controlled error, by considering multiple independent univariate tests.” (Lines 251-252)

Table 2: There are a lot of parameters which were not explained in the section of Method.

To clarify the detail parameters, we revised oral functional exercises and saliva collection procedure at Study protocol in Material Methods. Participants section, the number of patients with their characteristics were summarized not in Material Methods but in Result section. The detail of salivary treatment protocol, such as centrifuge condition, were provided. We already described measurement protocol of salivary IgA. (Lines 130 and 149-160)
Editorial Policies

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According to the Guidelines, we added line numbers. Declarations were already described in the manuscript.